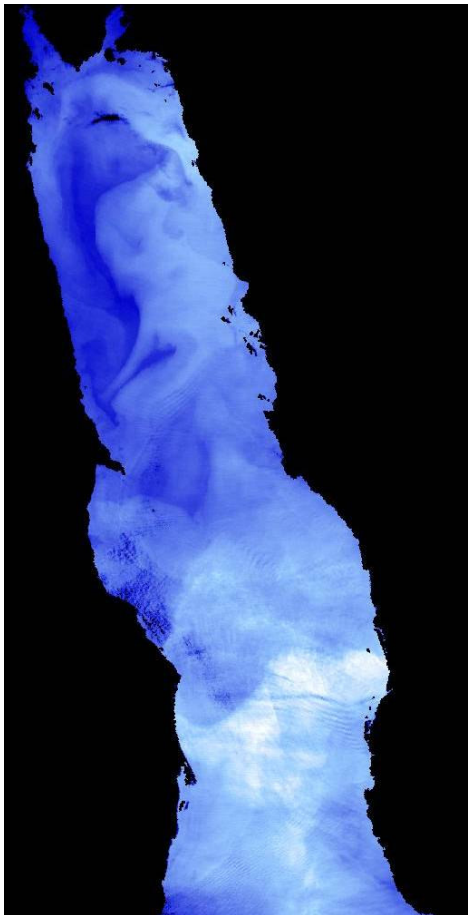
ENVISAT - AATSR

CYCLIC REPORT #62

	START	END
DATE	24 SEP 2007	29 OCT 2007
TIME	21:59:29	21:59:29
ORBIT #	29113	29613



Red Sea, 28 October 2007 – A night time thermal image showing temperature variations in the Red Sea.

prepared by/*préparé par* AATSR DPQC and QWG team
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A P P R O V A L

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C H A N G E R E C O R D

Issue: 1 Revision: 0

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AATSR CYCLIC REPORT # 62

1 INTRODUCTION

The AATSR Cyclic Report is distributed by the AATSR DPQC team to keep the AATSR community informed of any modification regarding instrument performances, the data production chain and the results of calibration and validation campaigns at the end of each Envisat cycle, which consists of 501 complete orbits over the course of 35 days.

This document is available online at: http://earth.esa.int/pcs/envisat/aatsr/reports/cyclic/

1.1 Acronyms and Abbreviations

AATSR	Advanced Along Track Scanning Radiometer
APC	Antenna Pointing Controller
CR	Cyclic Report
DDS	Data Dissemination System
DMOP	Detailed Mission Operation Plan
DMS	Data Management System
DPQC	Data Product Quality Control
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Centre
HSM	High Speed Multiplexer
IECF	Instrument Engineering and Calibration Facilities
IPF	Instrument Processing Facilities
LUT	Look Up Table
MPS	Mission Planning Schedule
NRT	Near Real Time
OCM	Orbit Control Manoeuvre
OBDH	On-board Data Handling
PDS	Payload Data Segment
PMC	Payload Management Computer
SPR	Software Problem Reporting
SW	Software
VISCAL	Visible Calibration

The AATSR list of acronyms and abbreviations is in the following site:
http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary

2 SUMMARY

Cyclic Report:	62	
Cycle Start:	24 Sep 2007, 21:59:29,	Orbit #: 29113
Cycle End:	29 Oct 2007, 21:59:29	Orbit #: 29613

The main activities during the cycle have been as follows:

- **L0 Processor and IPF Version:**

  L0 Processor – no change (5.22)

  Level 1b & Level 2 processor – no change (6.01)

- **Visible channel calibration:**

  The visible calibration data supplied as an aux file (ATS_VC1_AX) continued to be regularly updated throughout the cycle.

- **Envisat Anomaly and AATSR outgassing:**

  An anomaly occurred in the Envisat Service Module on 24 September 2007 at 12:27:00. Subsequently, an outgassing was performed on 27 September, and the instrument returned to operations on 28 September 2007 at 13:39:25.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.01

3.2 Auxiliary Files

AATSR processing uses the following auxiliary files:

- Browse Product Lookup Data (ATS_BRW_AX)
- L1b Characterisation Data (ATS_CH1_AX)
- Cloud Lookup Table Data (ATS_CL1_AX)
- General Calibration Data (ATS_GC1_AX)
- AATSR Instrument Data (ATS_INS_AX)
- Visible Calibration Coefficients Data (ATS_VC1_AX)
- L1b Processing Configuration Data (ATS_PC1_AX)
- L2 Processing Configuration Data (ATS_PC2_AX)
- SST Retrieval Coefficients Data (ATS_SST_AX)
- LST Land Surface Temperature Coefficients Data (ATS_LST_AX)

The latest filename for each auxiliary file in use in the PDS is as follows:

Product name
ATS_BRW_AXVIEC20020123_072338_20020101_000000_20200101_000000
ATS_CH1_AXVIEC20021114_113144_20020301_000000_ 20200101_000000
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20200101_000000
ATS_INS_AXVIEC20030731_092706_20020301_000000_20200101_000000
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20200101_000000
ATS_PC1_AXVIEC20040812_063722_20020301_000000_20200101_000000
ATS_PC2_AXVIEC20020123_074151_20020101_000000_20200101_000000
ATS_SST_AXVIEC20051205_102103_20020101_000000_20200101_000000

Table 3-1 Latest auxiliary files currently in use by the PDS

3.2.1 STATUS OF DAILY VISIBILE CALIBRATION FILES

3.2.1.1 VC1 File Availability

The daily reflectance channel calibration files were available for all dates, except for the following:

- 24th September 2007*
- 25th September 2007*
- 26th September 2007*
- 27th September 2007*
- 28th September 2007°
- 29th September 2007
- 30th September 2007°
- 2nd October 2007 (DDS reception problems at RAL)
- 7th October 2007
- 8th October 2007°
- 10th October 2007
- 27th October 2007

The orbital reflectance channel calibration files VC1 files were created from the available L0 files for all dates during this cycle.

* Envisat SM anomaly.
° These dates are a discrepancy between this list and the one given in Section 5.1.3; this is due to the files having been delivered but not disseminated.

3.2.2 STATUS OF OTHER AUXILIARY FILES

No other auxiliary files changed during this cycle.

4 PDS STATUS

4.1 Instrument Unavailability

AATSR data were unavailable due to instrument unavailability at the following times during the cycle:

UTC Start	UTC Stop	Reason	Reference	Planned
24-Sep-2007 12:27:00	28-Sep-2007 13:39:25	Envisat Service Module Anomaly	EN-UNA-2007/0226	No

Table 4-1 Instrument unavailability during cycle 62

4.2 L0 Data Acquisition and L1b Processing Status

Week		Orbit		Availability (s)			Availability (%)		
#	Dates	Start	Stop	Inst Unav	L0 gaps	L1 gaps	Instrument	L0	L1
1	September 24, 2007	29113	29212	349945	23952	0	42.14%	38.18%	38.18%
2	October 1, 2007	29213	29312	0	0	0	100.00%	100.00%	100.00%
3	October 8, 2007	29313	29413	0	0	10048	100.00%	100.00%	98.34%
4	October 15, 2007	29414	29513	0	5963	0	100.00%	99.01%	99.01%
5	October 22, 2007	29514	29613	0	0	0	100.00%	100.00%	100.00%

Table 4-2 Instrument and data unavailability weekly summary for cycle 62

The instrument was available for 88.43% of the time during the cycle.
The L0 data were available for 87.44% of the time during the cycle.
The L1b data were available for 87.11% of the time during the cycle.

The following L0 and L1b data were missing from this cycle:

NB Missing L0 data are automatically also missing at L1b. Therefore the missing L1b data specifically reported in Table 4-4 represent additional data gaps where the start time does not coincide with L0 data already known to be missing.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
28-Sep-2007 13:39	28-Sep-2007 15:11	5525	29165	29166
16-Oct-2007 23:36	17-Oct-2007 01:16	5963	29428	29429
24-Sep-2007 21:52	24-Sep-2007 22:00	463	29112	29113
24-Sep-2007 21:59	24-Sep-2007 22:00	3	29113	29113
28-Sep-2007 08:40	28-Sep-2007 13:39	17961	29162	29165

Table 4-3 ATS_NL__0P missing data during cycle 62

UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
10-Oct-2007 06:13	10-Oct-2007 09:00	10048	29332	29334

Table 4-4 ATS_TOA_1P missing data during cycle 62

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Section 4.2 does not consider the quality of data, only whether or not it is available.

During this cycle, the following orbits contained frames suffering from bad/missing telemetry:

- 29452 (18th October 2007)
- 29538 (24th October 2007)

4.3 L0 and L1b Backlog Processing Status

The list of data reported missing during the previous cycle has not changed.

5 DATA QUALITY CONTROL

5.1 Monitoring of Instrument Parameters

5.1.1 JITTER

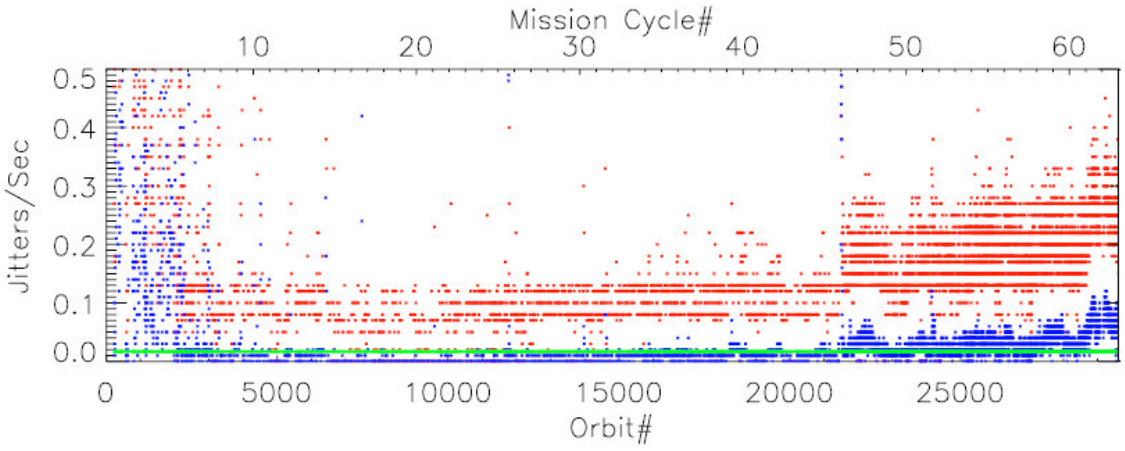

Figure 5-1 Jitter trend from mission start

The plot shows the jitter-trend since the start of the mission, against both orbit-number and cycle-number. The mean jitter-rate (per-orbit) is shown in blue and the maximum rate per orbit in red. The green horizontal line shows the nominal mean jitter-level achieved for much of the mission.

The jitter plot shows some minor improvement in both the mean and maximum jitter-rate. There is no significant deterioration in image quality associated with these jitter levels, but this is continually monitored.

5.1.2 SENSOR TEMPERATURE

While in measurement mode, all sensors maintained their nominal orbital and seasonal ranges in this cycle.

5.1.3 VISCAL

Reflectance channel calibration files are available for most days in these cycles, except:

- September 24 – 27 (due to Envisat unavailability and AATSR outgassing)
- September 29
- October 01 – 02 (due to RAL/DDS problems)

- October 07
- October 10
- October 27

In addition, the following set of “orbit-by-orbit” VC1 files was delivered:
http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-62.txt

5.1.4 NE∆T

The information for this section is not available for the previous two cycles, and will be published in the next cyclic report (#63).

5.2 User Rejections

There were no user rejections during this cycle.

5.3 Software Problem Reporting

This section describes the open SPRs, their potential impact on the data quality, and SPRs that have been closed.

5.3.1 EXISTING SPRS THAT ARE STILL OPEN

The following SPRs are still open:

Inconsistent values in AST Confidence word, 17 and 50km cells
NA-PR-07-02946
The AST confidence word may be incorrectly set for records where the nadir or dual view SST retrieval was invalid, indicating that the 3.7 micron channel was used (although this has no meaning in this instance). Although the wrongly set flags may be ignored as far as the 17km cell is concerned, they present a problem since they may propagate into the confidence word for the 50km cell. The problem does not occur for daytime (descending) arcs where the retrievals are valid for both views.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

No SPRs have been opened since the last Cyclic Report.

5.3.3 CLOSED SPRS

No SPRs have been closed since the last Cyclic Report.

6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

6.1 Calibration

No additional calibration results were reported during this cycle.

6.2 Validation

A monthly mean global dual-view SST plot for Cycle 62 composed from ATS_AR__2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.

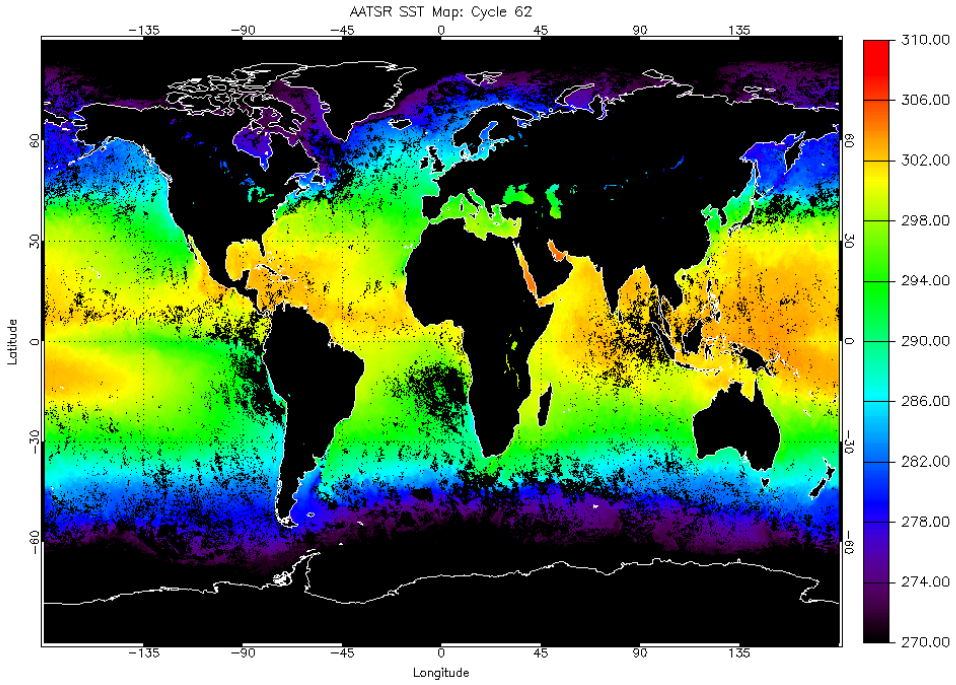

Figure 6-1: Monthly Global Average dual-view SST for Cycle 62.

The Met Office has validated the AATSR dual-view SST data using the global network of in situ buoy SST data, the results for Cycle 62 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

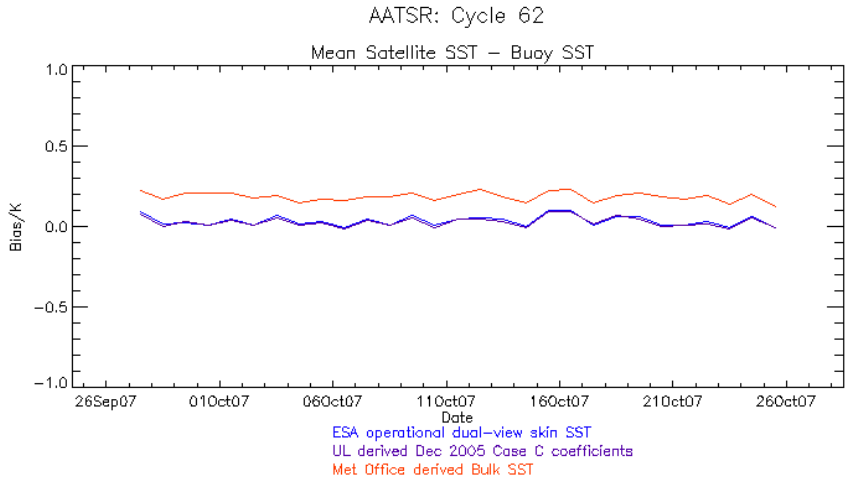

Figure 6-2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for Cycle 62. Data provided by the Met Office.

During cycle 62, there were 1629 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.002 K, standard deviation 0.28 K, and a mean (dual-view bulk SST minus buoy SST) of +0.133 K, standard deviation 0.24 K. A total of 1504 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.079 K, standard deviation 0.32 K, and a mean (dual-view bulk SST minus buoy SST) of +0.241 K, standard deviation 0.32 K. As these data are comparisons of a single point buoy measurement against a much larger spatially averaged value they are not a true indicator of AATSR's accuracy and are used to show consistency of data quality between cycles.

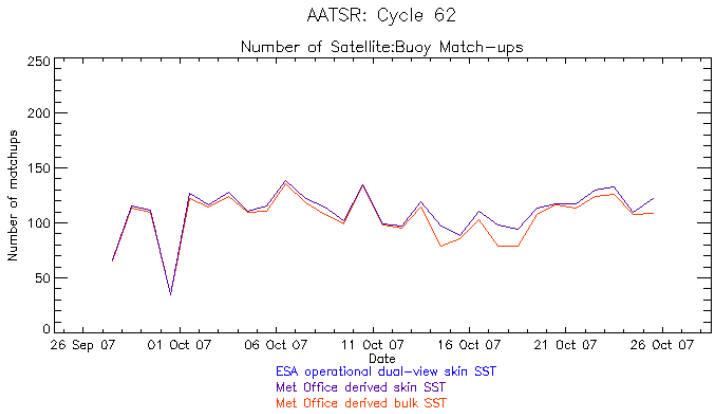

Figure 6-3: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 62. Data provided by the Met Office.

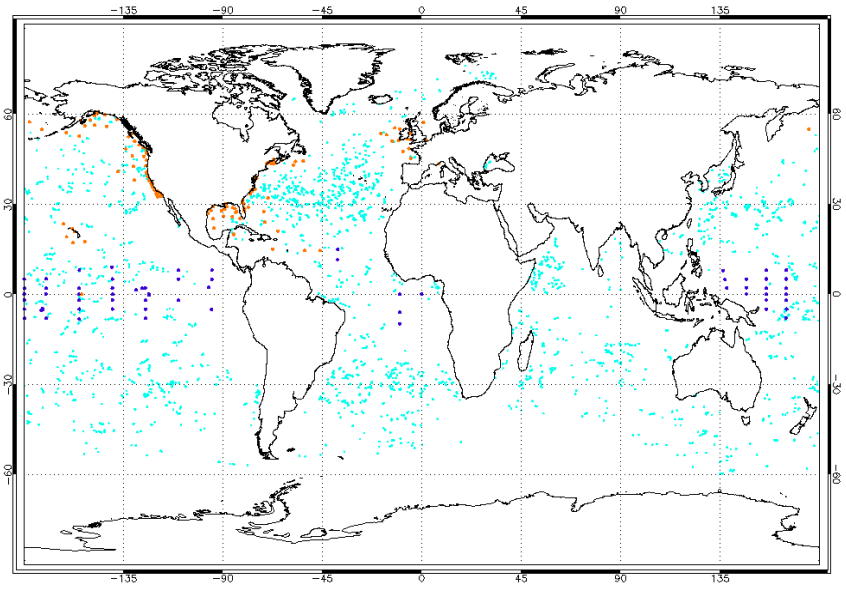

Figure 6-4: Map showing global distribution of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 62. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

A complete update on the status of the instrument validation can be found in Section 1.6.2 of Cyclic Report 28.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.